ABSTRACT OF THE INVENTION

Method and apparatus for OFDM synchronization and channel estimation. In a temporal embodiment, received embedded system pilot symbols are inverse Fourier transformed at expected index locations and correlated with computed complex conjugates of inverse Fourier transforms of pilot symbols for providing a correlation function for the channel impulse response. In a frequency domain embodiment, embedded system pilot symbols are augmented with pilot-spaced inferred guard band symbols, multiplied by scaled complex conjugates of computed pilot systems, and inverse Fourier transformed into the channel impulse response. Time and frequency are synchronized in feedback loops from information in the channel impulse response. The channel impulse response is filtered, interpolated, and then Fourier transformed for determining channel estimates for equalization.